

PRESERVING AMERICA'S FOSSIL HERITAGE

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From New York to San Diego and New Haven to Atlanta, the United States is world renowned for its prestigious museums of natural history. Institutional names such as Philadelphia's Academy of Natural Sciences, the American Museum of Natural History in New York City and the National Museum of Natural History at the Smithsonian Institution in our nation's capital are familiar to academics, tourists and dinosaur enthusiasts around the globe. Throughout history, these institutions have led field parties throughout the world in an attempt to amass a large collection of fossils, artifacts and relics of both historic and pre-historic significance. At times, these field expeditions have led to bitter rivalries and feuds which have become legendary in their own right, though ultimately leading to the advancement of science for all mankind. Today, people can tour the exhibit halls in the American Museum of Natural History and see *Tyrannosaurus rex*, collected in 1902 by Barnum Brown in the badlands of Hell Creek, Montana, or dinosaur trackways collected by Roland T. Bird in the Paluxy River bed near Glen Rose, Texas. While these museums are visited by thousands or even millions of tourists each year in our nation's largest cities, most of which lie east of the Mississippi River, what of the original sites of discovery?

Enter the National Park Service of the United States Department of the Interior. Preserving nature, culture and history in the form of national parks, historic sites, monuments and battlegrounds the National Park Service is perhaps less frequently recognized for its preservation of paleontological resources at the original localities from which many of our museums have amassed their collections. By an Act of March 1, 1872, Congress established Yellowstone National Park as "a public park or pleasuring ground for the benefit and enjoyment of the people" (Kieley, 1940). More than 130 years later, today the National Park System is composed of 388 areas extending nearly 84.5 million acres in 49 states, the District of Columbia, American Samoa, Guam, Puerto Rico, Saipan and the Virgin Islands (National Park Service, 2005). By the very nature of its mission statement, which reads "to preserve unimpaired the natural and cultural resources and values of the national park system for the enjoyment, education, and inspiration of this and future generations" (Kieley, 1940), the National Park Service works hard to preserve the American legacy, from pre-human America at Triassic aged Petrified Forest National Park in Arizona to our nation's birth at Independence National Historical Park in Philadelphia. Many of our national parks and monuments, located primarily in the western interior of our continent, pay special tribute to a time before man, when our world was populated by many floral and faunal forms now long gone.

Unlike the great museums of the east, the National Park Service has preserved many of the original fossils *in situ*, rather than as cast replicas or in collection storage facilities. At these sites of discovery in the American West, where fossil relics are now preserved for the enjoyment and education of the public in their original location, they are also protected against theft, commercial collection, vandalism and, in some cases, even against the elements of erosion. In addition to the *in situ* preservation of these fossils, the National Park Service also has museum quality displays in park visitor centers, offers public interpretive programs, publishes educational materials and works closely with scientists who, by permit, can continue to study and collect data from these park

localities. Petrified Forest National Park, located in eastern Arizona, is an easily accessible outdoor classroom of natural history and a fine example of preservation stewardship. After a field investigation of the area in 1899, Lester Ward, paleobotanist to the United States Geological Survey recommended to Congress that the area be withdrawn from homesteading and placed under protection of the federal government (Tuttle, 1990). Then, after Congress passed the Antiquities Act in 1906, President Theodore Roosevelt declared the area as a national monument until, after several additions of adjacent land areas, in 1962 the monument was redesignated as Petrified Forest National Park (Tuttle, 1990). Preserving the 93,493 acres of the park, the National Park Service enforces strict laws prohibiting the removal of petrified wood, fossils and all other artifacts from the park in order to preserve them for the enjoyment of future generations. In addition to law enforcement, the National Park Service works hard to preserve some of the park's other curiosities, such as at Agate Bridge, a petrified log over one hundred feet in length, straddling an eroded ravine. In an attempt to protect the log against erosional forces, the addition of support beams have been placed beneath the log so as to preserve the beauty and uniqueness of Agate Bridge for years to come (Tuttle, 1990). The Rainbow Forest Museum and Visitor's Center, located at the park's south entrance, displays petrified wood and dinosaur fossils from the park's Triassic Upper Chinle Formation. In addition there are a variety of ranger led interpretive programs such as the Triassic Park Program, a twenty-minute ranger guided walk along the park's Giant Log Trail. The Junior Ranger Program provides children an educational opportunity to learn about the park and its resources at leisure and is fun for the whole family. At Petrified Forest National Park, the National Park Service has taken another step in its education programs such as the Paleontology Module, a hands-on educational curriculum based activity for school field trips and other groups. The National Park Service Paleontology Program, in keeping with their mission statement, focuses its efforts on the preservation of fossils and other natural geologic processes in the parks. Fossils (invertebrate, plant, vertebrate and trace) have been found in over 180 units of the National Park System and together, provide a comprehensive history of life throughout geologic time, from the Precambrian to the Pleistocene.

In May of 2000, the Secretary of the Interior, reporting in Fossils on Federal and Indian Lands listed seven principles governing fossil management by the National Park Service and other federal land management agencies (Department of the Interior, 2000). They are as follows:

Principle #1- Fossils on federal lands are a part of America's heritage.

Principle #2- Most vertebrate fossils are rare.

Principle #3- Some invertebrate and plant fossils are rare.

Principle #4- Penalties for fossil theft should be strengthened.

Principle #5- Effective stewardship requires accurate information.

Principle #6- Federal fossil collections should be preserved and available for research and public education.

Principle #7- Federal fossil management should emphasize opportunities for public involvement.

Such principles are essential to the care and management of Na-

tional Park paleontological resources. Principles 2 through 6 directly pertain to preserving such resources from damages of natural and human origin. Principles 1, 6 and 7 indicate the National Park System makes educational use of their protected resources (Paleontology Module at Petrified Forest National Park) and Principle 5 is the cornerstone of preservation. With the modern technological support of Global Positioning Systems and Geographic Information Systems (GIS) software, the National Park Service can now keep detailed accurate information on the locations of fossil localities within the parks and can rely on visitors and volunteers to provide such information, thus reducing the cost of park service manpower to collect such data. With such accurate electronic and digital models, the National Park Service can better manage, and thus preserve, America's fossil heritage. The National Park Service

also publishes a wealth of information concerning park paleontology for any who are interested. Such publications as the newsletter *Park Paleontology* and *NPS Paleontological Research* volumes serve to communicate information on the preservation and resource management of fossils in the park system. The Paleontology Internship Program and Geoscientists-in-the-Parks Program serve to educate college students on the particulars of fossil preservation, education and scientific data collection ethics within the national parks. With such an abundance of fossil-bearing units and large diversity of fossils, the publications, law enforcement efforts, preservation techniques and educational programs, it is easy to see why, although unorthodox in a museological sense, the National Park Service is perhaps the largest and most diverse paleontological institution in the world.

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